

Trends in Utility Green Pricing Programs (2006)

Lori Bird and Marshall Kaiser

Technical Report
NREL/TP-670-42287
October 2007

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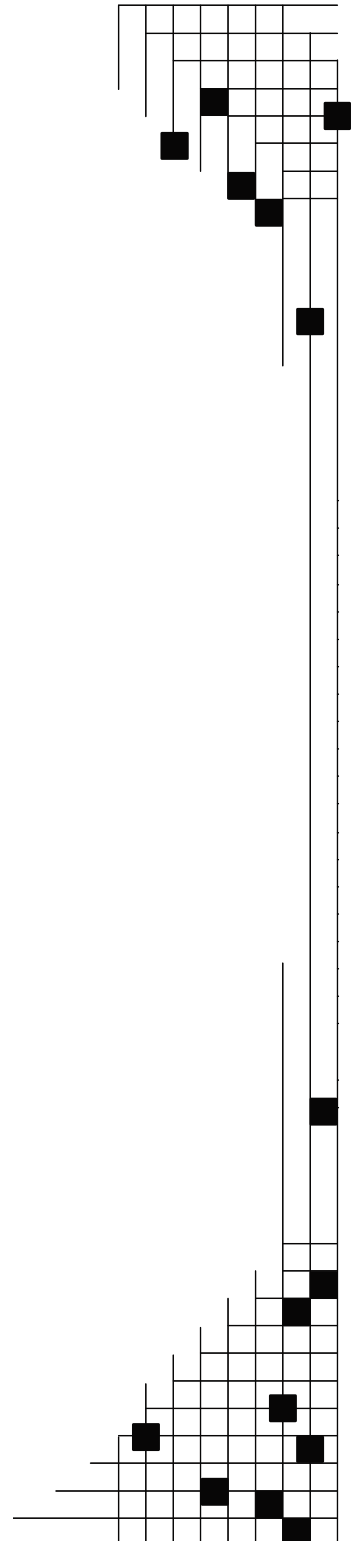
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Prepared under Task No. IGST.7330

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Operated for the U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
by Midwest Research Institute • Battelle

Contract No. DE-AC36-99-GO10337



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Acknowledgments

This work was funded by the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE). The authors wish to thank Linda Silverman and John Atcheson of EERE and the EERE renewable energy technology programs for their support of this work. The authors also wish to thank Adam Capage and Dan Lieberman of 3 Degrees Inc., Barry Friedman of Renewable Choice Energy, Jeff Anthony of the American Wind Energy Association, and Leila Dagher and Gian Porro of the National Renewable Energy Laboratory (NREL) for their thoughtful review of the document, as well as Michelle Kubik of NREL for her editorial support. The authors thank the many utility contacts that provided the information summarized in this report and Lynne Fenn, Gail Mosey, and Leila Dagher of NREL for their assistance in collecting and processing data from utilities. Finally, the authors wish to thank Blair Swezey for all of his support of this work throughout the years. Additional information on green power market trends and activities can be found on the U.S. DOE's Green Power Network Web site (<http://www.eere.energy.gov/greenpower/>).

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Executive Summary

In the early 1990s, only a handful of utilities offered their customers a choice of purchasing electricity generated from renewable energy sources. Today, more than 750 utilities—or about 25% of all utilities nationally—provide their customers a “green power” option. Because some utilities offer programs in conjunction with cooperative associations or other publicly owned power entities, the number of distinct programs totals more than 150. Through these programs, more than 70 million customers have the ability to purchase renewable energy to meet some portion or all of their electricity needs—or make contributions to support the development of renewable energy resources. Typically, customers pay a premium above standard electricity rates for this service.

This report presents year-end 2006 data on utility green pricing programs, and examines trends in consumer response and program implementation over time. The data in this report, which were obtained via a questionnaire distributed to utility green pricing program managers, can be used by utilities to benchmark the success of their green power programs. It is important to note that this report covers only a portion of voluntary markets for renewable energy. It does not cover green power sold by independent marketers except for cases in which the marketers work in conjunction with utilities or default electricity suppliers.¹

At the end of 2006, green pricing sales were equivalent to more than 1,000 MW of new renewable energy capacity. Thus, green pricing continues to be a viable strategy for supporting the development of new renewable energy sources. While utility green power programs continue to exhibit strong growth in overall sales, current success can be attributed to a relatively small number of programs.

The following is a summary of key findings from this analysis.

Consumer Response

- In 2006, utility green power programs continued to exhibit strong growth. Collectively, utilities sold 3.8 billion kilowatt-hours (kWh) of green power to more than 560,000 customers. A relatively small number of programs still account for the majority of utility green power sales and customers, with the top 10 programs accounting for about two-thirds of sales and 60% of customers.
- Programs offered in restructured electricity markets grew slightly faster than those in regulated markets, but growth rates slowed significantly from 2005. This slowdown may be a sign that these relatively new programs are maturing.
- In traditionally regulated electricity markets, sales through utility green pricing programs increased nearly 40% following an increase of 33% in 2005 and growth rates in excess of 40% from 2002 to 2004. The number of customers participating in green pricing programs increased by about 20%, a slower pace than sales.
- The average participation rate across all green pricing programs continued to climb modestly, increasing to 1.8% from 1.5% in 2005. The top 10 utility green pricing programs exhibited participation rates ranging from 5% to 17%.

¹ For data on the entire voluntary renewable energy market, see Bird and Swezey (2005a).

- The fraction of customers dropping out of green pricing programs in 2006 was about 6%, consistent with 2005, but down from previous years.

Renewable Energy Supplies

- Of the total kilowatt-hours (kWh) sold through utility green power programs, nearly 90% was from power purchases or renewable energy certificates (RECs), with about 10% from utility-owned projects and less than 1% from customer-sited systems.
- The use of RECs continued to climb, with utilities purchasing more than 1.7 billion kWh of RECs to serve green pricing customers in 2006. This represents a 70% increase from 2005 levels and a 17-fold increase from 2002. RECs represented nearly half of all green pricing sales in 2006.
- The vast majority of green pricing sales (about 85%) were sourced from “new”² renewable energy facilities. Wind energy accounted for 78% of sales, followed by biomass (15%), hydro (4%), geothermal (3%), and solar (0.2%).
- Renewable energy sales to green pricing customers represent a capacity equivalent of more than 1,000 MW of new renewable energy sources.

Pricing and Revenues

- The average price premium charged for green power through green pricing programs continued to decline, falling to 2.12¢/kWh from 2.36¢/kWh in 2005, and 2.45¢/kWh in 2004. Since 2000, the premium has declined at an annual average rate of more than 8%. The median price premium fell below 2¢/kWh for the first time to a low of 1.78¢/kWh.
- A number of utilities reduced their green pricing premiums because of higher fossil fuel costs or because they were able to enter into more favorable contracts for renewable energy supplies.
- In 2006, residential customers spent about \$5 per month on average for green power through utility programs, consistent with previous years.

Marketing

- About a dozen utilities (13%), including those in deregulated electricity markets, indicated that they were working with a third-party marketer. These utilities had higher participation and sales rates than utilities that did not partner.
- As might be expected, utility expenditures on marketing for green power programs vary by utility size. However, there was significant variability in expenditures by the largest utilities, and a few utilities reported spending as much as 10 times more than utilities of similar size. The top performers generally spent more on marketing than other utilities.
- Expenditures on administration also varied to some degree by utility size, but most utilities reported spending less than \$50,000 on administration, including some of the largest utilities.
- Utilities reported a median cost of \$30 for acquiring new residential customers, as in previous years. The top performers³ reported similar acquisition costs.

² New is defined as renewable resources placed in service on or repowered after January 1, 1997, consistent with the definition used by the Green-e certification program http://www.green-e.org/what_is/standard/standard.html and other programs such as the Environmental Protection Agency’s Green Power Partnership.

³ The top performers are defined as those that were among the top 10 programs for customer participants, green power sales, and customer participation rate, according to the NREL rankings (see Appendix C).

- About 40% of utilities reported that some portion of program costs is not covered by participants. The most common reason cited is that the utility does not attribute some of the marketing and administrative costs to the program.
- On average, utilities used at least six of the marketing techniques listed in the questionnaire to publicize their green pricing program in 2006, while the top performers used an average of seven.
- The marketing techniques that utilities ranked as most effective include utility newsletters, bill inserts, publicity, direct mail, and bangtails.⁴

Program Implementation

- Slightly more than half of utilities reported that they had conducted customer research to aid in the design or implementation of their green pricing programs, compared to 80% of the top performers. About 40% of utilities reported performing a program evaluation, compared to about two-thirds of the top performers.
- The most common added benefits that utilities offer to their green power customers are: 1) inform customers about the status of the program through newsletters that provide periodic program updates, 2) offer a welcome kit to new participants, 3) recognize business customers through ads in local media, 4) provide decals that can be displayed in windows, and 5) recognize participants with plaques or other items. The top performers reported providing an average of five of the added benefits listed in the questionnaire compared to four for all programs.

⁴ Bangtails are advertisements that are attached to mail-in envelopes; they must be ripped off the envelope before they can be placed in the mail.

Introduction

Utilities first began offering consumers a choice of purchasing electricity generated from renewable energy sources in the early 1990s. Since then, the number of U.S. utilities offering green pricing programs has steadily grown. Today, more than 750 utilities—or about 25% of all utilities nationally—offer their customers green power options. Because some of these utilities offer programs in conjunction with cooperative associations or other public power entities, the number of distinct programs is about 150. Through these programs, more than 70 million customers have the ability to purchase renewable energy to meet some portion or all of their electricity needs, or make contributions to support the development of renewable energy resources. Typically, customers must pay a premium above standard electricity rates for this service.

Since 1999, the National Renewable Energy Laboratory (NREL) has compiled data on utility green pricing programs on an annual basis. Initially, the data covered consumer response and program-design features, such as participation and retention rates, price premiums, enrollment requirements, and new renewable energy capacity installed to supply green pricing programs.⁵ Beginning in 2002, NREL added data on marketing and program implementation, covering areas such as customer acquisition costs, marketing strategies and budgets, program-evaluation efforts, procurement of supplies, and methods of enrolling and providing value to customers.

In 2004 and 2005, the data collection efforts were expanded to include utility programs implemented in conjunction with independent marketers in restructured electricity markets. Because of significant differences in the design and implementation of these programs, data on programs offered in restructured markets are only included in estimates of total sales and customers, except as noted. All other data on pricing, program design, marketing, and implementation are for utility programs offered in traditionally regulated electricity markets only, which we refer to as “green pricing.” Data from previous years are presented in detail in Bird et al. (2004), Bird and Cardinal (2004), and Bird and Brown (2005), respectively.

This report presents detailed data on utility green pricing programs compiled for year-end 2006, and examines trends in consumer response and program implementation since 2000. The data provided in this report can be used by utilities to benchmark the success of their green pricing programs. It is important to note that this report covers only a portion of voluntary markets for renewable energy. It does not cover green power sold by independent renewable energy marketers except for cases in which the marketers work in conjunction with utilities.⁶

Data Collection and Methodology

The information presented in this report is based on data provided to NREL by utilities operating green power programs. In 2006, a questionnaire was distributed via e-mail to 145 green power program managers representing about 135 individual green power programs (see **Appendix A** for the questionnaire and **Appendix B** for a list of utilities that offer green pricing programs). In

⁵ The results are summarized in Swezey and Bird 1999; 2000.

⁶ For data on the entire voluntary renewable energy market, see Bird and Swezey (2005a).

a few instances, the questionnaire was distributed to several distribution utilities that participate in a single green pricing program offered through a generation-and-transmission cooperative or public power supplier. This was done because some power suppliers do not collect data from participating distribution utilities or are not able to provide data on marketing and program implementation. As in 2005, data were collected from a number of utility programs that are offered in conjunction with third-party marketers in states that have implemented retail competition. These responses were only included in the estimates of total utility green power customers and sales. Responses were received for 96 programs, yielding an overall active program response rate of 67%. Where possible, data gaps were filled with information obtained from utility Web sites, follow-up phone calls, and published reports (Washington CTED and UTC 2006), as well as data received in previous years.

Customer Participation

Number of Customers

At the end of 2006, about 570,000 customers were participating in utility green power programs nationally, including programs offered in regulated and restructured electricity markets (**Table 1**).⁷ As in the past, a relatively small number of green power programs account for the majority of customers, with just 10 programs accounting for 60% of all participants (**Appendix C**).⁸ In 2005, the top 10 programs accounted for 65% of all participants nationwide.

Table 1. Number of Participants in Utility Green Power Programs (in Regulated and Competitive Electricity Markets)

	2004	% Change 05/04	2005	% Change 06/05	2006
Utility Green Pricing Programs in Regulated Markets	331,800	19%	394,700	23%	486,300
Utility Programs in Restructured Electricity Markets	29,400	107%	60,800	34%	81,400
Total	361,200	26%	455,500	25%	567,700

In 2006, about 81,000 customers participated in utility/marketer programs in restructured electricity markets. These programs differ from utility programs offered in traditionally regulated electricity markets in that they involve independent marketers working in conjunction with the incumbent utilities (or default service providers) to offer renewable energy products to retail consumers. Under these programs, customers can purchase green power without switching from default or standard-offer service. Examples include the Connecticut *CleanEnergyOptions* program and the National Grid *GreenUp* program.

⁷ NREL obtained consumer response data for nearly 70% of utility green pricing programs in 2006, including all of the major programs. The remaining programs, which are smaller in size, do not have a large impact on overall participant numbers.

⁸ NREL issues four different top 10 lists based on total sales of renewable energy to program participants, total number of customer participants, customer participation rates, and the premium charged to support new renewables development. These lists can be found at <http://www.eere.energy.gov/greenpower/markets/pricing.shtml?page=3>.

In 2006, the number of participants in programs offered in restructured markets increased by about one-third, after more than doubling in 2005. While growth in customer acquisition in these programs has slowed, the growth rate is still higher than for utility green pricing programs (23%). Part of the slowdown in 2006 simply may be due to maturation. As programs mature, they may capture more of their target market, making additional customer acquisition slower or more expensive. On the other hand, the fact that these programs are primarily promoted by companies specializing in renewable energy marketing who are heavily financially vested in the success of the programs may have contributed to the high growth rates relative to other programs.

Table 2 presents the number of customers participating in utility green pricing programs offered in traditionally regulated electricity markets since 2000. From 2000 to 2006, the number of customer participants increased nearly fourfold, with growth rates during the past several years ranging from 16% to 25%.

Table 2. Estimated Cumulative Number of Customers Participating in Utility Green Pricing Programs (Regulated Electricity Markets Only)

Customer Segment	2000	2001	2002	2003	2004	2005	2006
Residential	131,000	166,300	224,500	258,700	323,700	383,400	470,800
Nonresidential	1,700	2,500	3,900	6,500	8,100	11,300	15,500
Total	132,700	168,800	228,400	265,000	331,800	394,700	486,300
% Total Annual Growth	98%	27%	35%	16%	25%	19%	23%
% Residential Growth	n/a	27%	35%	15%	25%	18%	23%
% Nonresidential Growth	n/a	47%	56%	67%	25%	40%	37%

Table 2 delineates residential and nonresidential customer participation in utility green pricing programs over time. The vast majority of participants are residential customers, with nonresidential customers accounting for only 3% of all participants. During 2006, the number of residential and nonresidential customers grew at different rates, with the nonresidential sector growing by 37% and the residential sector by 23%. The faster growth rate in nonresidential participation was also true in previous years, with the exception of 2004 when both residential and nonresidential customers grew by about 25%. This trend of increasing nonresidential purchasers has a significant impact on overall sales volume, as nonresidential green power purchases outstrip residential green power purchases by a wide margin.

In 2006, eight respondents (or 8%) reported that the program was not open to new customers, compared to four fully subscribed programs in 2005. Six of the eight programs closed to new customers in 2006 were maintaining waiting lists, while the utility was seeking additional renewable energy supplies. The presence of oversubscribed programs can limit overall participation rates if the utilities are not meeting all available consumer demand.

Participation Rates

At the end of 2006, the average rate of participation in utility green pricing programs among eligible utility customers was 1.8%, with a median of 1% (**Table 3**). Although the average rate

has increased slightly from last year (up from 1.5%), the median remains unchanged. The top 25% of programs had participation rates of 2.2% or greater (**Table 4**). The 10 programs with the highest participation rates achieved participation rates of between 5% and 17% in 2006, up slightly from 2005 (**Appendix C**).⁹ With relatively few exceptions, participation rates remain well below those predicted in early utility market research (see, for example, Farhar 1999).

Some possible explanations for the relatively slow increase in participation rates include: 1) a general lack of awareness among customers, 2) lack of sustained marketing efforts on the part of some utilities, 3) poor value propositions, or 4) the addition of new programs, which are averaged with the performance of more established programs. (Holt and Holt 2004, Swezey and Bird 2001).

Table 3. Customer Participation Rates in Utility Green Pricing Programs

Participation Rate	2000	2001	2002	2003	2004	2005	2006
Average	1.2%	1.3%	1.2%	1.2%	1.3%	1.5%	1.8%
Median	0.7%	0.7%	0.8%	0.9%	1.0%	1.0%	1.0%
Top 10 programs	2.6% - 7.3%	3.0% - 7.0%	3.0% - 5.8%	3.9% - 11.1%	3.8% - 14.5%	4.6% - 13.6%	5.1% - 16.9%

Table 4. Customer Participation Rates in Utility Green Pricing Programs (2004-2006)

Participation Rate	2004	2005	2006
25 th Percentile	0.3%	0.4%	0.5%
50 th Percentile (Median)	1.0%	1.0%	1.0%
75 th Percentile	1.4%	1.8%	2.2%

Table 5 shows that across all utilities, the average participation rate for green pricing programs in 2006 for residential and nonresidential customers was 1.8% and 0.5%, respectively. Despite the small increase in average residential participation, average nonresidential participation decreased slightly. The lower participation rates among nonresidential customers may be explained, in part, by the fact that some programs place less emphasis on the nonresidential sector. Also, nonresidential customers as a whole may be more price-sensitive (due to the larger quantities of green power purchased) and perhaps less willing to pay a premium than residential consumers. Furthermore, some nonresidential consumers could be purchasing RECs from an independent REC marketer, perhaps at lower cost, rather than participating in the utility program.

⁹ From 2000 to 2002, the high end of the range declined because the utility with the highest participation rate (Moorhead Public Service) experienced an increase in its overall customer base, while the number of participants in its green pricing program remained steady. The program was fully subscribed in 2000, and the utility has not attempted to expand it. Likewise, the high end of the range declined from 2004 to 2005, because the number of participants in the Lenox Municipal Utilities green power program essentially remained constant, while its customer base increased.

Table 5. Green Pricing Participation Rates by Customer Segment

	Residential Participation Rate %			Nonresidential Participation Rate %			Total Participation Rate %		
	'04	'05	'06	'04	'05	'06	'04	'05	'06
Average	1.4	1.6	1.8	0.4	0.7	0.5	1.3	1.5	1.8
Median	1.1	1.2	1.1	0.2	0.2	0.3	1.0	1.0	1.0

The number of respondents was 80 in 2004, 89 in 2005, and 97 in 2006.

Retention of Customers

In 2006, utilities reported that an average of 6% and a median 4% of customers dropped out of green pricing programs. These figures continue the downward trend first seen in 2005, despite the fact that electricity and energy prices have remained high in most regions of the country (Table 6).

As in previous years, utilities that have reported higher-than-average turnover rates among green power customers also cite high turnover among all utility customers; for example, several of these utilities have service territories that include large universities where high customer turnover is recurrent. One utility also cited particularly high attrition rates after announcing plans to build a new coal-fired power plant, which regional environmental organizations opposed. And a few utilities have experienced higher-than-average decreases in enrollment as a result of general rate increases.

One effective strategy for reducing attrition is making an effort to retain participants in the program when they move within the utility service territory. Also, continuing to communicate the success and benefits of the program to consumers may help alleviate problems with attrition. Consumers may need to be reminded periodically of the value of the program and the impact that their expenditures have had. Many programs do so via a periodic newsletter, delivered either physically or electronically. Finally, offering tangible benefits such as exempting customers from fossil fuel cost increases may help retain customers.

Table 6. Percentage of Customers Dropping Out of Green Pricing Programs

	2002	2003	2004	2005	2006
Median	2.5%	6.6%	8.8%	5.1%	3.7%
Average	4.3%	7.1%	9.8%	6.5%	5.9%

Renewable Energy Sales and Supplies

Green Power Sales and Revenues

Collectively, utilities sold nearly 4 billion kilowatt-hours (kWh), or about 440 average megawatts (aMW), of green power to customers in 2006 (**Table 7**). Overall, green power sales (in kWh) increased 40% from 2005. This increase is mostly attributable to an increase in nonresidential participation. Sales of renewable energy through utility programs in competitive electricity markets grew 46% during 2006, generally on par with green pricing growth rates, but significantly below the doubling that occurred in 2005. This slower growth rate may be explained by general program maturation; the doubling in 2005 may have resulted from a number of relatively new offerings, which benefited from the promotions that come with new offerings and picking up the so-called “low hanging fruit,” the first level of participants who are pre-disposed to participate.

As in 2005, the top 10 green pricing programs represented the bulk of all green power sales nationwide. In 2006, 71% of kWh sold were attributed to the top 10 programs (in terms of green power sales), with one program alone (Austin Energy) accounting for 15% of all green power sales nationwide (**Appendix C**). Austin Energy’s sales success stems in part from the fact that it allows customers to lock in the price of green power at a fixed rate for up to 10 years, which has been particularly popular among nonresidential customers. It is interesting to note that nonresidential participants represented about 3% of overall participants, but represented more than one-third of total program sales in terms of kWh (**Table 8**).

Table 7. Sales of Renewable Energy through Utility Green Power Programs in Regulated and Competitive Electricity Markets (million kWh)

	2004	2005	2006	% Change '05-'04	% Change '05-'06
Utility Green Pricing Programs in Regulated Markets	1,839	2,448	3,404	33%	39%
Utility Programs in Competitive Electricity Markets	136	291	425	114%	46%
Total	1,975	2,738	3,829	39%	40%

Table 8 presents sales of renewable energy through utility green pricing programs in regulated electricity markets over time. Green pricing program sales to all customer classes grew by 39% in 2006, compared to rates ranging from 33% to 56% in the past several years (**Figure 1**). The growth in sales can be attributed to the larger number of customers purchasing green power as well as larger purchases, particularly among nonresidential customers (**Table 9**). On average, residential customers purchased about 4,400 kWh of green power annually in 2006, nearly twice the level of purchases in 2001, while nonresidential customers purchased an average of 85,000 kWh in 2006.¹⁰ These increases in purchase levels are likely due to a larger number of programs that require participants to purchase green power for a more substantial fraction of their electricity use (e.g., 100%), as well as decreases in some green pricing premiums.

¹⁰ Note that estimates of average purchases have been revised for years 2002 to 2004 for those reported in Bird and Brown (2004), which were averaged across utility programs. Estimates presented here are calculated based on total sales and customer participants.

Table 8. Annual Sales of Renewable Energy through Utility Green Pricing Programs (Regulated Electricity Markets Only), millions of kWh

	2001	2002	2003	2004	2005	2006
Sales to Residential customers	400	661	874	1,295	1,606	2,103
Sales to Nonresidential customers	173	234	410	544	842	1,302
Total Sales to All customers	573	895	1,284	1,839	2,448	3,404
% Annual Growth in Total Sales	26%	56%	43%	43%	33%	39%
% Nonresidential of Total Sales	30%	26%	32%	30%	34%	38%

Totals may not add due to rounding.

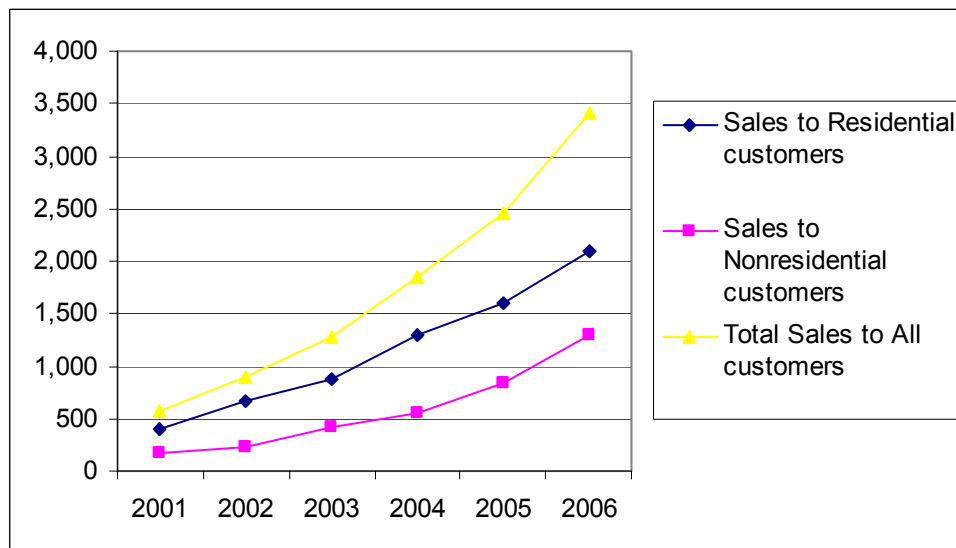


Figure 1. Annual Sales of Renewable Energy Through Utility Green Pricing Programs (Regulated Electricity Markets Only), millions of kWh

Table 9. Average Purchases of Renewable Energy Per Customer (kWh/year)

	2001	2002	2003	2004	2005	2006
Residential Customers	2,400	2,900	3,400	4,000	4,200	4,400
Nonresidential Customers	69,200	60,000	63,100	67,200	74,500	85,700
All Customers	3,400	3,900	4,800	5,500	6,200	6,700

Renewable Energy Resources Supplying Green Pricing Programs

Most programs use new renewable energy sources to supply their green pricing programs, with roughly 90% of sales supplied from new renewable energy facilities.¹¹ Of total sales, wind resources supplied 78%, followed by biomass (including landfill gas) (15%), hydro (4%), geothermal (3%), and solar (<1%) (Table 10 and Figure 2). These fractions are similar to those

¹¹ New is defined as renewable resources placed in service or repowered on or after January 1, 1997, consistent with the definition used by the Green-e certification program http://www.green-e.org/what_is/standard/standard.html and other programs such as the Environmental Protection Agency's Green Power Partnership.

reported in 2005. Wind, solar, and landfill gas are the renewable resources most commonly featured in green pricing programs. For example, many utilities offer products that include some solar, but the contribution of solar to the total green power program resource mix on a generation basis is relatively small.

Renewable energy sold through green pricing programs in 2006 represents an equivalent renewable energy capacity of more than 1,100 MW, with more than 1,000 MW of this represented by new renewable energy resources.¹² Wind energy represents more than 95% of the total capacity supplying green pricing programs.

Table 10. Renewable Energy Generation and Capacity Supplying Green Pricing Programs (2006)

	Landfill Gas	Other Bio	Geothermal	Hydro	Solar	Wind	Total
Sales MWh	321,000	201,000	89,000	146,000	7,200	2,641,000	3,404,000
% of Total Sales	9.4%	5.9%	2.6%	4.3%	0.2%	77.6%	100%
Capacity Factor	0.9	0.8	0.9	0.5	0.2	0.3	
Total MW	41	29	11	33	4	1,004	1,123
MW New RE	27	16	<1	5	4	992	1,044

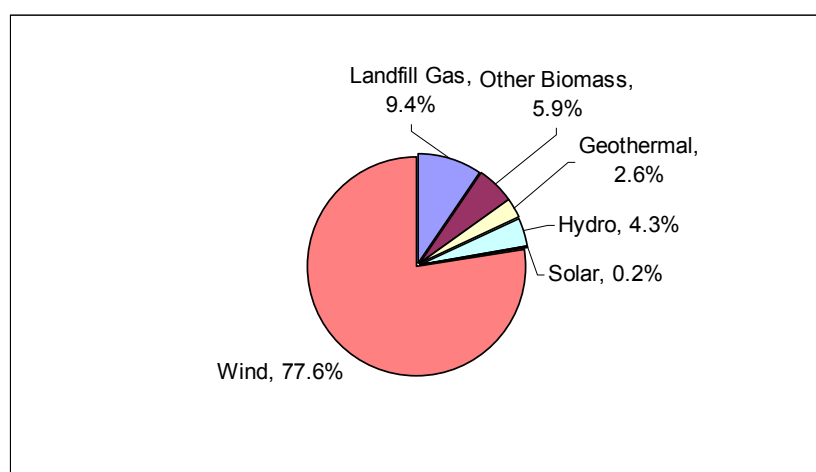


Figure 2. Renewable Energy Sources Supplying Green Pricing Programs (2006)

In 2005, sales of renewable energy through green pricing programs represented nearly 800 MW of renewable energy capacity, with about 740 MW of that from new renewable energy sources. In previous years, capacity estimates were based on renewable energy projects used to serve green pricing programs, rather than derived from renewable energy sales.¹³ Therefore, the 2006 and 2005 estimates of capacity are not directly comparable to capacity estimates from previous years (see **Table 11**). However, the two approaches yield relatively consistent results.

¹² Capacity factors are derived from EPRI and U.S. DOE *Renewable Energy Technology Characterizations*, TR-109496, December 1997.

¹³ For details on the derivation of these previous year estimates, see Bird and Swezey (2005b).

Table 11. Estimated Cumulative Capacity Supplying Utility Green Pricing Programs (1999-2004)

	1999	2000	2001	2002	2003	2004
Cumulative MW	68	77	221	279	510	706
Annual Growth %	--	14%	188%	26%	82%	38%

Note: Capacities based on project nameplate capacities.

While many programs use blends of renewable energy sources, more than half of programs feature only one energy source. Of these, most feature wind, while a smaller number feature strictly solar or biomass. The remaining programs offer a blend of two or more resources.

Renewable Energy Sales vs. Total Utility Sales

In 2006, green power sales still represented a small but increasing proportion of a utility company's overall energy sales. **Table 12** shows that, on average, renewable energy sold through green pricing programs represented about 0.5% of total utility electricity sales (on a kWh basis) in 2006. Green power sales to residential consumers represented about 1% of residential electricity sales, and nonresidential green power sales were about 0.4% of nonresidential electricity sales. The 2006 figures are consistent with the upward trend shown in previous years (**Table 13**). Half of programs reported green power sales of 0.25% of total electricity sales or more, while a few utilities reported fractions as high as about 5% of total retail electricity sales.

Table 12. Renewable Energy Sales as a Percent of Utility Electricity Sales (2006)

Customer Class	Average	25 th Percentile	Median (50 th Percentile)	75 th Percentile	Range
Residential	0.95%	0.11%	0.38%	0.91%	0% - 13.4%
Nonresidential	0.42%	0.01%	0.09%	0.37%	0% - 6.6%
All customers	0.54%	0.07%	0.25%	0.53%	0% - 5.2%

Table 13. Renewable Energy Sales as a Percent of Utility Electricity Sales (2004-2006)

Customer Class	2004			2005			2006		
	Avg.	Med.	Range	Avg.	Med.	Range	Avg.	Med.	Range
Residential	0.70%	0.40%	0% - 10.2%	0.89%	0.34%	0% - 13.7%	0.95%	0.38%	0% - 13.4%
Nonresidential	0.20%	0.02%	0% - 3.7%	0.23%	0.04%	0% - 4.8%	0.42%	0.09%	0% - 6.6%
All customers	0.40%	0.20%	0% - 3.2%	0.48%	0.2%	0% - 4.0%	0.54%	0.25%	0% - 5.2%

On average, residential customers spent \$5.20 per month to purchase or support green power through utility programs in 2006 (**Table 14**), up from 2005 levels, but generally consistent with previous years.

Utility green pricing programs collected an estimated \$40 million in green power revenues in 2006 (**Table 14**). After a slight dip in 2005, green power revenues increased again in 2006. While many utilities have lowered the premiums that they charge for green power, increased sales have led to higher revenues. Green pricing program revenues are typically used to pay the above-market costs of renewables, as well as the costs of administering and marketing the program—although the treatment of the latter differs by utility (see discussion in the Marketing section of Holt and Holt 2004, Swezey and Bird 2001).

Table 14. Residential Monthly Expenditures on Green Power and Annual Program Revenues

	2003	2004	2005	2006
Average monthly residential expenditures	\$5.50	\$5.30	\$4.49	\$5.20
Annual utility revenues from green power	\$20 million	\$32 million	\$25 million	\$40 million

Note: Revenues estimated from annual kWh sales and reported price premiums. Some premiums may change monthly or periodically with changes in fuel costs and this was not accounted for in the estimates.

Ownership vs. Purchases of Supplies

Measured as a percent of total kWh, nearly 90% of green energy sold through utility green pricing programs was from power purchases or RECs, with only about 10% from utility-owned projects and less than 1% from customer sited systems (**Figure 3**). But as a percentage of green pricing programs, a much larger portion, nearly one quarter of all programs, are sourced entirely from utility-owned projects. Another 55% of utilities either purchase all of their power from an independent power generator or purchase renewable energy certificates (RECs) from a marketer or supplier (**Table 15**). The remaining utilities use a combination of these approaches to supply their green power programs.

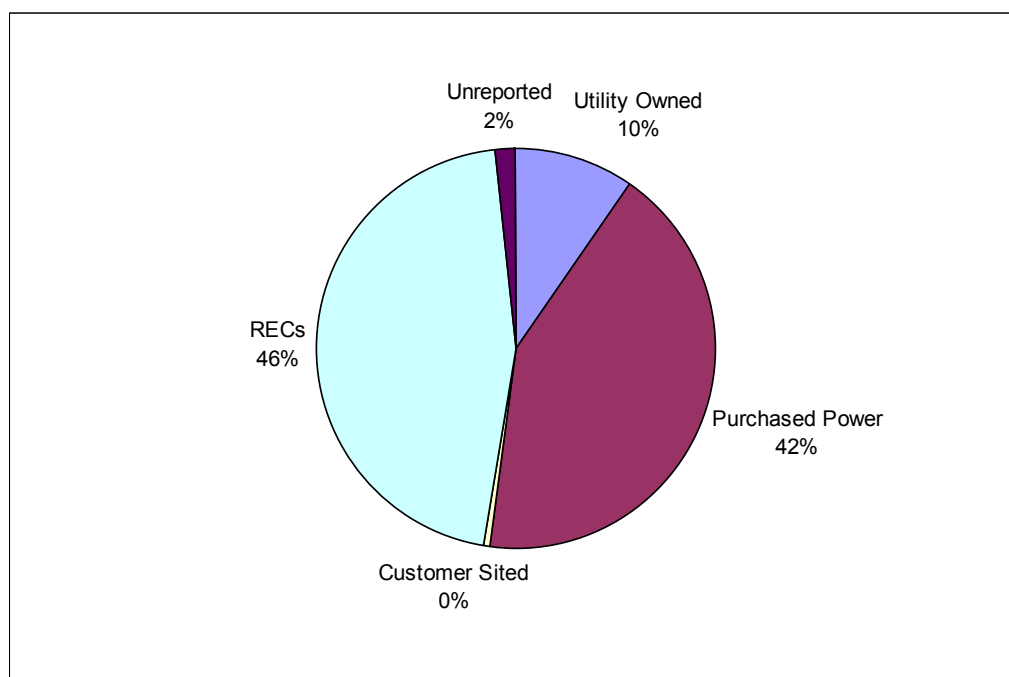


Figure 3. Fraction of Utility Green Power Sales by Source

The distribution in the types of sources green pricing programs used to power their programs changed little in 2006 from 2005, with some increase in the use of power from customer-sited systems. One trend that has been consistent since 2003 is an increased reliance on REC purchases. Collectively, utilities purchased more than 1.7 billion kWh of RECs to serve green power customers in 2006, an increase of 70% over 2005 (**Table 16**). But programs using RECs exclusively or for at least half of their supplies actually decreased for 2006; it was mainly programs that used RECs in combination with owned and purchased green power that accounted for the overall increase.

Table 15. Utility Procurement of Renewable Energy Supplies

	Own Generation		Purchase Power		Purchase RECs		Purchase from Distributed Systems	
Fraction of Supplies	2005	2006	2005	2006	2005	2006	2005	2006
For 100% of program power supplies	25%	23%	27%	25%	32%	30%	3%	3%
For at least 50% of program power supplies	32%	30%	42%	42%	35%	34%	3%	3%
For any fraction of program power supplies	43%	39%	47%	45%	35%	40%	9%	14%
Note: Percentages based on 80 programs in 2005, and 88 in 2006.								

Table 16. REC Purchases by Utilities to Supply Green Pricing Programs

	2002	2003	2004	2005	2006
REC purchases by utilities for green pricing programs (million kWh)	103	419	707	1,030	1,750
REC purchases as percent of total green pricing sales	11%	33%	38%	42%	46%
% change from previous year	n/a	307%	69%	46%	70%

RECs are also increasingly being used in programs across the country, which may simply indicate that RECs are becoming an increasingly common way of purchasing renewable energy in the marketplace. In 2003, about three-quarters of utilities that supplied their programs with RECs were in the Pacific Northwest; in 2006, fewer than half of the utilities using RECs were in the Pacific Northwest. Utilities that reported purchasing RECs for some portion of their program supplies in 2006 covered 16 states, including Arizona, California, Colorado, Florida, Idaho, Illinois, Massachusetts, Montana, New York, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and Wisconsin. Generally, most utility programs purchase RECs sourced from projects that are located near the utility's service territory.

Product Type

Most utility green pricing programs are structured so that customers can purchase renewable energy to meet some or all of their electricity needs. The green power premium charged in these “energy-based” programs is typically expressed in ¢/kWh or \$/kWh block. Other programs are structured to allow customers to contribute funds that support the development of renewable energy sources. These so-called “contribution programs” have become less common, and currently represent fewer than 10% of all programs.¹⁴

Energy Blocks vs. Percentage of Use

Most programs are structured so that customers can purchase blocks of green power. Block sizes range from 20 kWh (for energy derived exclusively from solar systems) to 1,000 kWh (for wind energy or renewable energy blends). Block sizes range typically from 100-200 kWh. Many utilities offer larger block sizes to nonresidential customers, in some cases at a reduced per-kWh premium over that offered to residential customers.

The remaining programs allow customers to purchase green power for some fraction of their electricity needs. Most of these programs allow residential customers to elect to have 25%, 50%, or 100% of their electricity supplied from renewable sources, while a few offer fractions as small as 10%. Often, commercial and industrial customers can purchase green power for a smaller fraction of their electricity use than is available for residential customers.

Regarding the question of whether it is better to offer a percent-of-use option or kWh-blocks, some marketers have argued that it is difficult to communicate the concept of a kWh-block to consumers, because customers do not understand kilowatt-hours and are not used to thinking about them. Some marketers have found that this is a significant barrier to enrolling customers. They argue that consumers can more easily understand a product that is presented as a percentage of electricity use. On the other hand, selling blocks of renewable energy may provide additional flexibility to consumers to enable them to purchase smaller increments (although this could also be accomplished by offering a small percent-of-use option). Another potential benefit for customers of purchasing blocks is that the green power premium remains fixed for the customer each month and does not vary along with electricity consumption. Some programs have reported that their billing and administrative systems cannot readily accommodate percent-of-use program structures.

Pricing

In 2006, price premiums for energy-based programs ranged from -0.1¢/kWh to 17.6¢/kWh, with an average premium of 2.1¢/kWh and a median of 1.8¢/kWh. These premiums have been adjusted to account for any fuel cost exemptions granted to green power program participants. It

¹⁴ In the past, a few utilities have offered programs through which customers make a monthly payment tied to the amount of renewable energy capacity that is supported (“capacity-based programs”). For example, customers might be offered the option to pay \$6 each month to support 100 watts of solar energy-generating capacity. Capacity-based programs are no longer actively marketed and, in some cases, have been phased out in favor of energy-based or contribution programs.

is also interesting to note that the average premium drops to 1.9¢/kWh if calculated without the two outliers with premiums of 10.0¢/kWh or greater.

Figure 4 displays price premiums for individual utility programs—solar-based products dominate the high end of the price range. In 2006, the utility programs with the lowest premiums for energy derived from new renewable sources had premiums ranging from -0.1¢/kWh to 1¢/kWh.

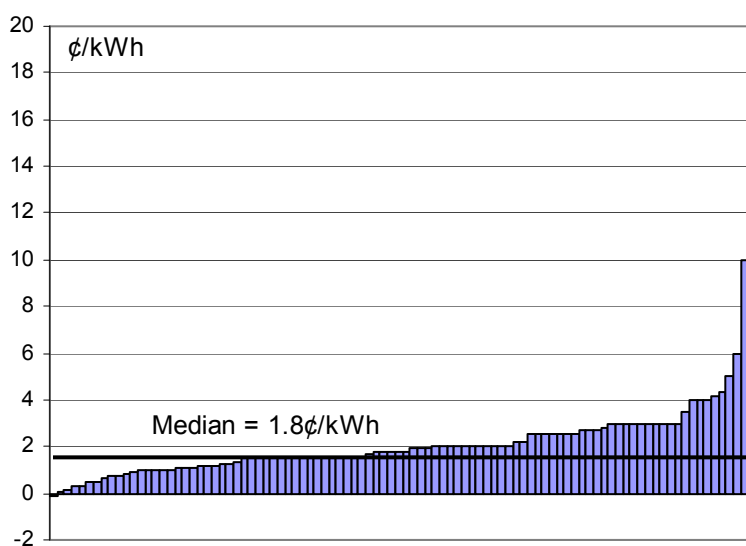


Figure 4. Green Power Premiums Cents/kWh (2006)

In 2006, price premiums continued to decline, decreasing about 10% from 2005. Since 2000, the average price premium has dropped at an average annual rate of 8%. For the first time, the nationwide median premium dipped below 2¢ (**Table 17**).

Table 17. Price Premiums of Utility Green Power Products (¢/kWh)

	2000	2001	2002	2003	2004	2005	2006
Average Premium	3.48	2.93	2.82	2.62	2.45	2.36	2.12
Median Premium	2.50	2.50	2.50	2.00	2.00	2.00	1.78
Range of Premiums	(0.5)-20.0	0.9-17.6	0.7-17.6	0.6-17.6	0.33 - 17.6	(0.7)-17.6	(0.1)-17.6
10 Programs with Lowest Premiums*	(0.5)-2.5	1.0-1.5	0.7-1.5	0.6-1.3	0.33-1.0	(0.7)- 0.9	(0.1)-1.0
Number of Programs Represented	50	60	80	91	101	104	97
*Represents the 10 utility programs with the lowest price premiums for new customer-driven renewable energy. This includes only programs that have installed – or announced firm plans to install or purchase power from – new renewable energy sources. In 2001 the discrepancy between the low end of the range for all programs and the top 10 programs results from the program with the lowest premium (0.9¢/kWh) not being eligible for the top 10 because it was either selling some existing renewables or had not installed any new renewable capacity for its program.							

During 2006, about a dozen programs modified the price premium charged for green power, with all but one resulting in a premium decrease. For those utilities that reduced their premiums, most attributed the reduction to the exemption of green power customers from fossil fuel charges, their ability to renegotiate power purchase contracts at lower rates, or the overall improved cost-competitiveness of renewable energy sources. Other reasons that have contributed to the decline in premiums over time are higher-than-expected capacity factors, and natural gas price increases, which have reduced the cost spread between renewable energy and gas-fired generation.

About a dozen programs have reported that they explicitly charge different price premiums for residential and nonresidential consumers. Generally, most of these programs charged lower premiums to nonresidential consumers, with some offering bulk purchase discounts for large green power purchases.¹⁵ In these programs, the premium charged to nonresidential customers generally ranged from about 0.5¢/kWh to 1.5¢/kWh less than the residential green power premium.

Because most renewable energy facilities do not rely on fuel, some utilities offer fixed-price green power products or exempt their green power customers from some fuel-cost charges. A number of utilities include this feature as a component of their green pricing product.¹⁶ One of these utilities also exempts green power customers from the costs associated with making environmental improvements at some of its fossil fuel-generating facilities. Exempting customers from fossil fuel costs can be a particularly important strategy for enrolling large nonresidential customers with greater energy consumption, as evidenced by the success of Austin Energy. Austin Energy's program, which accounts for about 15% of all utility green pricing sales nationwide, offers fixed-price, long-term green power, which has been particularly attractive to their larger customers.

Marketing

In 2006, we introduced a new question and asked utilities if they actively promoted their green power programs in 2006. In response, 15 program managers (or 17% of respondents) indicated that they were not actively promoting their program in 2006.

Teaming with Third-Party Marketers

Utilities were also asked to report whether they teamed with third-party marketers to promote their green power programs. About a dozen utilities (13%), including those in deregulated electricity markets, indicated that they were working with a third-party marketer. We found that these utilities had higher participation and sales rates than utilities that did not partner. The average participation rate for programs that partnered with marketers was 4.3% compared to

¹⁵ Utilities that have reported these differences in 2006 or earlier include: Consumers Energy, Continental Cooperative Services/Soyland, Midstate Electric Cooperative, North Carolina utilities participating in NC Green Power Program, PacifiCorp, Park Electric Cooperative, Portland General Electric, Puget Sound Energy, Salt River Project, We Energies, and Wisconsin Public Power Inc.

¹⁶ The utilities include: Austin Energy, Alliant Energy, Clallum County PUD, Edmond Electric, Eugene Water and Electric Board, Green Mountain Power, Holy Cross Energy, Madison Gas & Electric, OG&E Electric Services, We Energies, and Xcel Energy.

1.4% for other utilities. Average green power sales rates were 1.3% for programs that teamed with marketers compared to 0.4% for other programs.¹⁷ Some of this difference may be explained by the fact that third-party marketers are highly financially vested in the success of these programs (Bird and Brown 2006).

Marketing and Administration Spending

In the questionnaire, utilities were asked to report their marketing and administrative expenditures. Marketing costs were defined as including: “all spending associated with advertising, promoting, and selling the product including labor directly in support of those efforts.” Administrative costs were defined as including: “(labor and non-labor) costs associated with customer service, transactions, billing, training, managing inventories, reporting, and legal/regulatory reviews, etc.” In previous years, marketing costs were defined as not including staff time, but no other explanation was provided in the questionnaire.

As one might expect, spending on marketing for green power programs generally varies with size of the utility, with larger utilities generally spending more. However, **Table 18** shows some notable exceptions in which a few utilities spent as much as 10 times the amount spent by those of a similar size. In addition, there is significant variability in the marketing costs reported by the largest utilities, with several large utilities spending less than \$10,000 and others spending more than \$300,000 (**Table 18 and Figure 5**). The top performers¹⁸ generally spent more on marketing than other utilities. **Figure 6** shows that the top performers represent a large percentage of the utilities spending the most on marketing.

With respect to program-administration spending, expenditures varied to some degree by size of utility, with some larger utilities reporting spending more (**Table 19**). However, most utilities reported spending less than \$50,000 on administration, including some of the largest utilities.

Table 18. Utility Expenditures on Marketing (2006)

Number of Utility Customers	Number of Responses									Total
	\$0	\$1 - \$9,999	\$10,000 - \$49,999	\$50,000- \$99,999	\$100,000- \$199,999	\$200,000- \$299,999	\$300,000- \$399,999	\$400,000- \$499,999	\$500,000 or more	
1-99,999	2	26	5	2	1	0	0	0	0	36
100,000-499,999	0	3	13	2	0	0	1	0	0	19
500,000-999,999	0	0	1	1	2	0	0	2	0	6
1,000,000+	0	3	0	0	2	1	4	1	1	12
Total Respondents	2	32	19	5	5	1	5	3	1	73
Top Performers/ % All Respondents	0/0%	5/16%	3/16%	0/0%	2/40%	1/100%	2/40%	3/100%	0/0%	

¹⁷ We conducted a t-test for equality of means and found that the difference in means for both participation rates and sales rates were statistically significant at the 0.10 level.

¹⁸ The top performers are defined as those that were among the top 10 programs for customer participants, green power sales, and customer participation rate, according to the NREL rankings (see Appendix C).

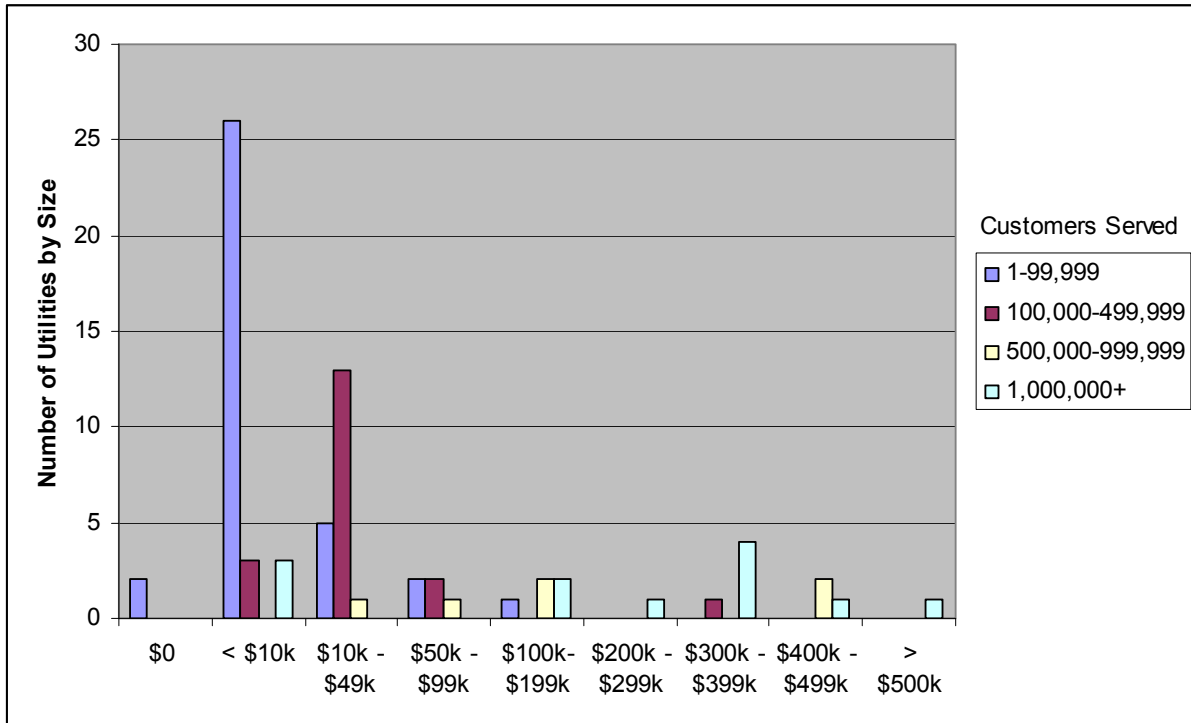


Figure 5. Utility Expenditures on Marketing by Size of Utility (2006)

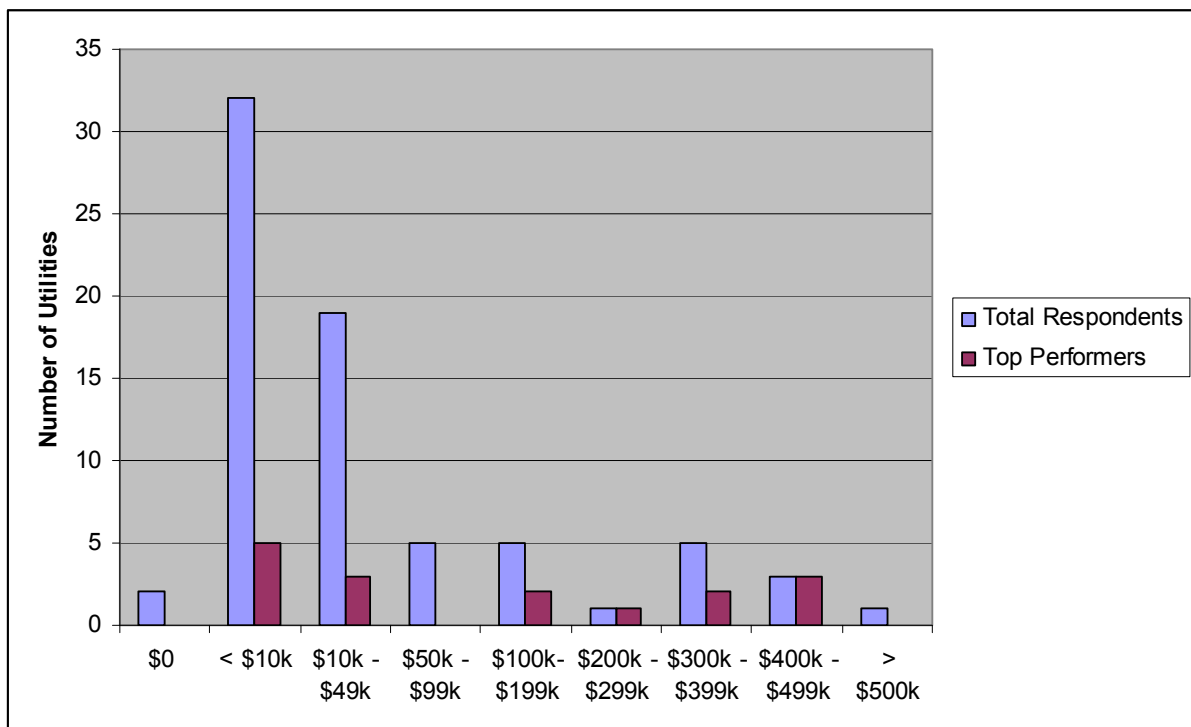


Figure 6. Utility Expenditures on Marketing, Total Respondents and Top Performers (2006)

Table 19. Utility Expenditures on Program Administration (2006)

Number of Utility Customers	Number of Responses									Total
	\$0	\$1 - \$9,999	\$10,000 - \$49,999	\$50,000-\$99,999	\$100,000-\$199,999	\$200,000-\$299,999	\$300,000-\$399,999	\$400,000-\$499,999	\$500,000 or more	
1-99,999	4	22	5	0	0	1	0	0	0	32
100,000-499,999	1	4	12	2	0	0	0	0	0	19
500,000-999,999	0	1	1	2	1	0	0	0	1	6
1,000,000+	0	2	2	2	3	1	1	0	1	12
Total Respondents	5	29	20	6	4	2	1	0	2	69
Top Performers/ % All Respondents	1/ 20%	5/17%	2/10%	2/33%	3/75%	1/50%	1/100%	0/0%	1/50%	16/ 23%

In 2006, utilities reported that a median of 10% (average of 23%) of the total green power premium was spent on marketing and program administration (**Table 20**).¹⁹ This is a marked increase from 2005 levels of 2% and 15%, respectively, but consistent with data from 2004. Responses to this question varied widely.

In comparison, the top-performing programs reported spending a median of 28% and an average of 24%. A number of utilities, primarily public utilities and cooperatives, reported that no portion of the premium was used for marketing and administration. For some utilities, this is because they use overall utility marketing for the program and do not include these costs in the program premium, whereas others are not actively promoting their programs. The increase in the fraction of the premium attributed to marketing costs from 2005 levels may reflect the inclusion of labor costs for marketing or an increase in marketing activities by the surveyed utilities.

Table 20. Marketing and Administrative Expenditures as Percentage of Premium (2006)

	2003	2004	2005	2006	Top Performers 2006
Average	17%	20%	15%	23%	24%
Median	5%	9%	2%	10%	28%
# of Responses	36	60	59	51	16

Seventeen utilities provided actual expenditures on marketing, while 10 provided actual administrative expenses. **Figure 7** displays actual marketing and administrative expenditures on a per customer basis (per all utility customers, not just green power program participants).

¹⁹ In 2002, utilities reported spending a median of 15% (average of 20%) of their program budgets on marketing. It is not possible to compare responses for 2002 and 2003/2004, because the questions differed.

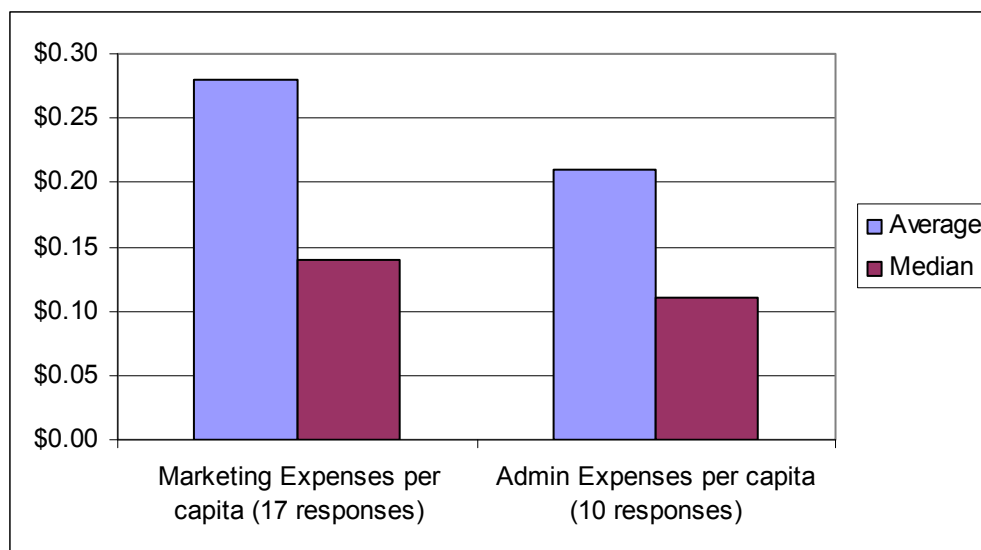


Figure 7. Marketing and Administrative Expenses Per Utility Customer (2006)

Forty-six programs (58%) indicated that program participants cover all costs associated with the green pricing program. Of the remaining 33 programs in which nonparticipants cover some costs, most program managers explained that some marketing and administrative costs were not attributed to the program (i.e., spread among all ratepayers). Another less commonly cited reason was that the green pricing program received grants or other contributions.

Customer Acquisition

One measure of the cost of marketing a green pricing program is customer-acquisition cost—the marketing expenditures divided by the number of new customers that enroll in the program. For 2006, utilities providing data reported median and average residential customer-acquisition costs for green pricing programs of \$30 and \$38, respectively (**Table 21**).²⁰ However, the responses varied widely, ranging from \$0 to more than \$160 (**Figure 8**). The top programs reported lower median and average residential customer-acquisition costs of \$28 and \$31, respectively.

Customer-acquisition costs differed somewhat depending on the size of the utility (**Table 22**), with larger utilities reporting higher customer-acquisition costs than small utilities. However, the differences were less pronounced than in previous years. Some of the variability may be due to the types of costs that the utilities included in the calculation.

²⁰ Only about half of the utilities provided this information. The relative lack of responses may be because some utilities do not track customer-acquisition costs.

Table 21. Residential Customer-Acquisition Costs by Year

	2003	2004	2005	2006	2005 Top Performers	2006 Top Performers
Average	\$36	\$42	\$43	\$38	\$31	\$31
Median	\$31	\$30	\$25	\$30	\$27	\$28
No. of Respondents	36	42	43	48	10	12

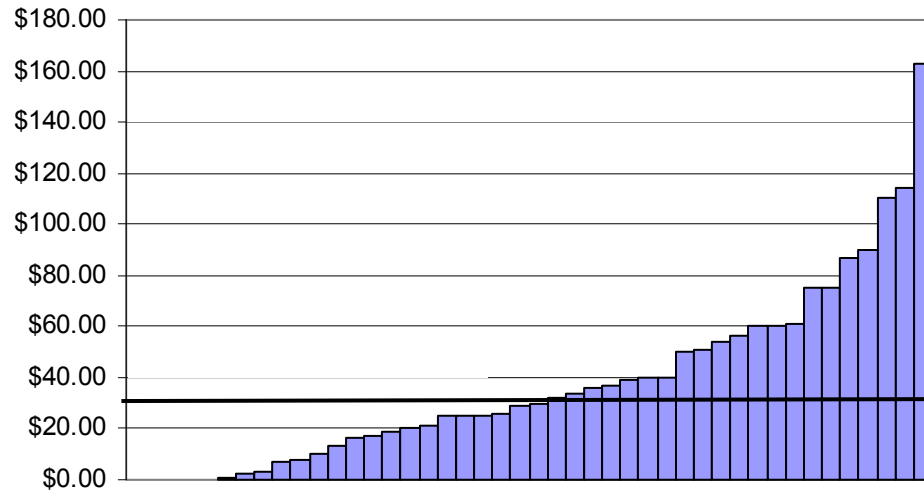


Figure 8. Customer-Acquisition Costs (2006)

Table 22. Residential Customer-Acquisition Costs by Utility Size

Size of Utility	2004			2005			2006		
	Avg.	Median	Num. Resp	Avg.	Median	Num. Resp	Avg.	Median	Num. Resp
1-99,999 Customers	\$12	\$4	12	\$27	\$14	21	\$31	\$19	18
100,000-499,999 Customers	\$56	\$35	13	\$97	\$41	9	\$43	\$37	9
500,000-999,999 Customers	\$60	\$55	9	\$40	\$28	7	\$38	\$29	5
1,000,000 Customers	\$41	\$36	9	\$29	\$30	8	\$47	\$33	10
All Utilities	\$42	\$30	43	\$43	\$25	45	\$38	\$30	42

Marketing Techniques Employed

The 2006 questionnaire asked respondents to indicate the various marketing techniques applied to their green pricing programs (**Tables 23 and 24**). As in previous years, advertising programs through utility newsletters, bill inserts, events, news articles (publicity), and Web marketing were among the top marketing strategies used.^{21, 22} Compared to previous years, a greater percentage of utilities reported using newspaper ads, direct mail, radio ads, partnerships with environmental organizations, retail partners, community challenges, and door-to-door marketing.

Table 23. Number of Marketing Techniques Used by Utilities

Number of Techniques Used by Utilities	2003	2004	2005	2006
0-1	7%	6%	13%	2%
2-3	26%	20%	20%	26%
4-6	45%	34%	33%	32%
7-9	21%	22%	22%	21%
10-14	n/a	18%	12%	18%
Note: There were 58 responses to this question in 2003, 88 in 2004, 91 in 2005, and 84 in 2006. Percentages may not add to 100% due to rounding.				

In 2004 through 2006, utilities were also asked to rank the effectiveness of the various marketing techniques listed in the questionnaire. Marketing techniques that received average rankings in 2006 above 3 out of a possible 5 included utility newsletters, bill inserts, publicity, direct mail, and bangtails. Some of the techniques with the highest effectiveness ranking were not commonly used. For example, bangtails have been ranked consistently as very effective, yet only 15% of all utilities reported using this technique. In 2006, programs employed an average of six of the marketing strategies listed in the questionnaire, while the top performers reported an average of seven. **Table 24** presents information on the number of marketing techniques used by utilities. Four utilities used “other” marketing techniques not listed in our survey. Three of them used “face-to-face” or “one-on-one” meetings with clients to promote the green power program. Such techniques received mixed effectiveness ratings.

Compared to all programs, the top performers used more tactics, including direct mail, direct sales, partnerships with environmental organizations, bangtails, television ads, retail partnerships, and telemarketing. Their larger marketing budgets may account for this (see **Table 18**).

²¹ In 2003, the “events” category was not listed as a specific option in the survey, but was listed under the “other” category by some respondents. The 2002 and 2004 surveys both included “events” as a category, and can therefore be compared with each other.

²² Lieberman (2002) reviewed marketing data for public utilities with similar findings, except that direct mail was ranked higher.

Table 24. Marketing Techniques Used by Utilities

	Percent of Utilities Using Technique				Percent Top Performers Using Technique**			Average Usefulness Rank^			
	2003	2004	2005	2006	2004	2005	2006	2005		2006	
								All	Top	All	Top
Utility newsletter	81%	78%	74%	78%	73%	81%	83%	2.9	2.8	3.1	3
Bill inserts	83%	74%	66%	72%	73%	75%	75%	3.5	3.7	3.8	3.6
Events	24%*	74%	60%	68%	73%	81%	63%	2.5	2.5	2.7	2.7
Publicity	64%	56%	57%	52%	69%	63%	54%	3.1	3.1	3.1	3
Web marketing^	n/a	56%	54%	52%	73%	63%	50%	2.7	3.2	2.9	2.9
Newspaper ads	53%	36%	42%	49%	46%	50%	50%	2.2	2.4	2.3	2
Direct sales^	n/a	38%	36%	34%	50%	63%	42%	3.4	3.5	3	3
Direct mail	48%	35%	34%	39%	62%	63%	54%	3.2	3.7	3.8	4.1
Radio ads	45%	22%	27%	33%	19%	25%	25%	2.4	2.3	2.3	2
Bangtails	n/a	n/a	16%	15%	n/a	38%	33%	3.9	4.5	3.9	4.3
Partner with environmental organizations^^	n/a	26%	16%	29%	54%	38%	42%	2.9	2.7	2.8	3
Retail partners^	n/a	11%	13%	20%	23%	31%	21%	2.5	2.2	2.8	2.2
Television ads	22%	15%	10%	12%	31%	31%	17%	1.5	1.8	2.6	2.5
Billboards	7%	8%	7%	6%	12%	13%	8%	1.7	1.5	2.5	4
Community challenges^	n/a	7%	5%	13%	19%	13%	25%	3.8	3.5	2.8	3
Kiosks^	n/a	7%	5%	7%	4%	0	0	1.1	0	2.6	0
Other	41%	19%	5%	5%	46%	6%	0	1.8	2.7	3.7	0
Telemarketing	14%	6%	4%	2%	12%	19%	5%	2.8	3.7	2	1
Door -to-door^^^	n/a	n/a	2%	7%	n/a	6%	25%	3.3	5	2.8	3

*Note: "Events" was listed as a specific option in the 2002, 2004, 2005 questionnaire, while in 2003 respondents were able to write it in under "Other."

**Top performers are defined as utilities that make the top 10 lists for participants, sales, or participation rate. In 2005 and 2006, 16 and 24 top programs responded to this question, respectively.

^ Ranking system is 1-5 with 5 being the most useful marketing technique. Ranking system only included in 2004.

^^New category in 2004

^^^New category in 2005

60 programs provided responses to the question in 2002, 58 responded in 2003, 88 in 2004, 91 in 2005, and 85 in 2006.

Program Implementation

Enrollment Options

Utilities reported that the most commonly used methods for enrolling customers in green pricing programs include: using the utility's Web site, phoning through the utility's call center, returning mail-in cards, and signing up during special events (**Table 25**). Only 7% of utilities allowed customers to enroll by checking a box on their utility bills.

Table 25. Methods of Enrolling in Green Pricing Programs

	% Using Method				2006 Top Performers % Using Method	Average Rank 1 to 5, 5=highest
	2003	2004	2005	2006		
Utility Web site	83%	80%	85%	84%	96%	2.9
Phone (utility call center)	87%	84%	84%	80%	84%	2.9
Returning mail-in card	85%	83%	81%	72%	88%	3.9
Enroll at special events	85%	73%	75%	75%	80%	2.2
Other	31%	48%	24%	16%	36%	3.8
Check-box on utility bill	12%	15%	13%	7%	12%	2.3
Note: The number of respondents was 62 in 2002, 59 in 2003, 88 in 2004, 91 in 2005, and 86 in 2006. Twenty-five top performers responded to this question in 2006.						

The most common methods are not necessarily the most effective; they may be commonly used because they are easy and inexpensive. Mail-in cards had the highest effectiveness rating of 3.9 (out of 5). As a group, "other" methods (which respondents were asked to list) was the only additional method receiving an average score greater than 3. Some of the enrollment options listed under "other" included bill inserts, direct sales through account representatives (both residential and commercial), phone marketing by a contractor, community challenges, and enrolling customers through retail partners or at the utility itself. On average, utilities offered three of the six enrollment options listed in the questionnaire.

Enrollment Term

Roughly one-third of utilities require residential and nonresidential customers to subscribe to green pricing programs for a minimum period of time. One year is by far the most common minimum enrollment period, with requirements ranging from three months to 10 years. In some cases, utilities require nonresidential customers to enroll for longer periods of time than residential customers. Only five residential and six nonresidential programs had minimum enrollment terms of more than one year in length. Anecdotal evidence suggests that few programs actually enforce these minimum periods, with the exception of fixed-rate contracts.

Program Evaluations and Market Research

Forty-two utilities (51%) reported that they had conducted customer research to aid in the design of their green pricing program or to develop a marketing plan. Of the 42 utilities, 26 had conducted market research over the course of several years. The remaining 16 utilities conducted market research only once, with some dating back to 1999. The types of research included: consumer surveys conducted by phone, mail, in-person (focus groups), customer profiling, and demographics; research to test the effectiveness of marketing messages or strategies; and research to determine customer satisfaction. Significantly, of the responding top-performing programs (25), 80% reported conducting market research in the past several years.

Thirty-three respondents (40%) indicated that they had performed a program evaluation, with most evaluations occurring in the past five years. Only five of the programs reported evaluating their programs constantly, annually, or biannually. Among the aspects evaluated, utilities most often listed: program effectiveness, pricing structure, and benchmarking. Of the top-performing programs, 64% reported conducting one or more program evaluations, compared to 40% for all programs.

Customer Value

Response to utility green pricing programs can be improved by offering additional benefits (Wiser et al. 2004). For example, customers may be more willing to participate in a program if their participation is recognized or rewarded, or if they receive other products and services, such as compact fluorescent light bulbs or store discounts. In analyzing the 2006 data, we found that utilities that offered more tangible benefits indeed had higher participation rates.²³

Table 26 indicates the percentage of utilities that provide additional benefits to customers, based on a list of options included in the 2002-2006 questionnaires. Of the 12 options listed, respondents indicated that they offered an average of four additional benefits to their green pricing customers. The most common added benefits in 2006 were 1) to inform customers about the status of the program through newsletters that provide periodic program updates, 2) to offer a welcome kit to new participants, 3) to recognize business customers through ads in local media, 4) to provide decals that can be displayed in windows, and 5) to recognize participants with plaques or other items. The fraction of utilities offering tours to renewable energy facilities, renewable energy systems on school buildings, or renewable energy education programs showed a slight increase in 2006 after trending downward during the previous few years. A relatively small fraction of utilities offer discounts or promotions at local businesses, protection from fuel cost increases, or exemption from environmental fees (e.g., fees designated for installing emission-control equipment at fossil fuel plants).

As in previous years, the top-performing programs were more likely to offer a number of the benefits listed in **Table 26**. For example, 28% of the top performers offered participants discounts at local businesses, compared to about 13% of all programs. The top performers were

²³ In conducting a bivariate analysis, we found positive correlation between the participation rate and the number of tangible benefits offered to consumers. The Pearson correlation coefficient was 0.305 and was statistically significant at the .05 level.

also more likely to protect customers from fuel cost increases. Overall, top performers reported providing an average of more than five of the benefits listed, compared to an average of four for all programs.

Table 26. Methods of Providing Additional Program Benefits

	% Using Method					Top Performers 2006 % Using Method
	2002	2003	2004	2005	2006	
Newsletters that provide program updates	62%	64%	61%	62%	68%	76%
Welcome kit	n/a	n/a	n/a	n/a	62%	68%
Recognition of business customers in program ads or local media	44%	51%	49%	46%	57%	56%
Decals for display in store windows	59%	56%	49%	54%	52%	56%
Plaques or other items for recognition	40%	49%	51%	44%	49%	48%
Installations on schools/renewable energy education programs	30%	25%	19%	30%	37%	36%
Tours to renewable energy project sites	35%	29%	23%	25%	28%	32%
Compact fluorescents or efficiency products	22%	12%	15%	15%	27%	20%
Discounts or promotions at local businesses	8%	12%	12%	15%	13%	28%
Protection from fuel-cost increases	11%	10%	9%	15%	12%	28%
Other	5%	12%	16%	16%	9%	8%
Exemption from environmental fees	2%	2%	1%	2%	2%	8%
Note: 59 programs answered this question in 2003, 89 programs in 2004, 91 in 2005, and 82 in 2006.						
*Top performers are defined as utilities ranked among the top 10 for participants, sales, or participation rate. Of the top performers in 2006, 21 responded to this question.						

Conclusions and Observations

At the end of 2006, more than 750 utilities—including many small municipal and cooperative utilities—offered green pricing programs to more than 70 million customers nationally. About 25% of all utilities nationwide now offer a green pricing option.

Collectively, utilities sold nearly 4 billion kilowatt-hours (kWh) of green power to more than 560,000 customers in 2006. In traditionally regulated electricity markets, sales of renewable energy through utility green pricing programs grew by about 40% to 3.4 billion kWh in 2006, following annual growth rates ranging from about 30% to 55% in the past four years. The current increase in sales resulted from both an increase in customer participants as well as larger purchases by customers. However, green pricing sales still represent a very small fraction of total utility electricity sales, with an average below 1%—although some utilities have achieved sales penetration rates of as much as 5%.

Both the number of customers and the volume of renewable energy sales grew somewhat faster for programs offered in restructured markets than it did for those in regulated markets, but the growth in restructured programs slowed in 2006 compared with the previous years, perhaps because they were benefiting from being relatively new in the past.

The number of customers participating in utility green pricing programs increased by about 20% in 2006, a slower pace than sales by volume. The number of nonresidential participants increased at nearly twice the rate of residential customers, as was the case in 2005. Customer-attribution rates fell to a median of 4% in 2006, similar to 2005, but lower than rates seen in previous years. Although the reason for the recent annual improvement in customer retention is not clear, it does suggest that green power customers are “sticky” in the face of increases in the cost of electricity, which have occurred in recent years.

As in previous years, a relatively small number of utility green power programs continue to dominate sales and participation figures. The top 10 programs accounted for about 70% of green power sales and 60% of customer participants, consistent with figures from previous years. In addition, programs marketed with third-party marketers had higher participation rates and renewable energy sales rates than programs marketed solely by a utility.

Average participation rates in green pricing programs have remained relatively flat over time, climbing slightly to 1.8% in 2006. Participation rates among the 10 most successful programs continue to be substantially higher than average, ranging from between about 5% and 17% in 2006 with most clustered from 5% to 6%. Higher levels of spending among these programs suggest that high participation rates are possible with dedicated marketing and outreach campaigns or for programs that offer superior value propositions.

The price premiums charged for green power continued on a downward trend in 2006. The average premium has fallen from 2.93¢/kWh in 2001 to 2.12¢/kWh in 2006, while the median premium fell from 2.5¢/kWh to 1.78¢/kWh during the same period. One program that exempts participants from fossil fuel cost changes offered green power at rates below standard electricity

prices during 2006, while several others offered green power at a very slight premium of less than 0.5¢/kWh.

Utilities reported a median cost of \$30 for acquiring new residential customers, similar to costs reported in previous years. Marketing expenditures generally vary with utility size, but there is wide variation in expenditures among the largest utilities. On average, the top-performing programs spend a greater amount on marketing and represent a majority of the top marketing spenders. Thus, the level of marketing expenditures appears to be important to program growth.

Response to utility green pricing programs can be improved by offering tangible benefits to both residential and nonresidential customers. These benefits include customer recognition, protection from fuel price increases, store discounts, and compact fluorescent light bulbs giveaways. The top performers offer a larger number of added benefits than other utilities and this appears to be a contributor to program success.

Compared to all programs, the top performers more commonly used direct mail, direct sales, partnerships with environmental organizations, bangtails, television ads, and community challenges. Consistent with findings from previous years, the techniques that received high effectiveness scores are not necessarily the most commonly used. In general, utilities may benefit from diversifying their marketing activities to include some of the more effective strategies.

At the end of 2006, green pricing programs were supporting the equivalent of more than 1,000 MW of new renewable energy capacity. Thus, green pricing continues to be a viable strategy for supporting new renewable energy sources. Nevertheless, current success can still be attributed to a relatively small number of programs. Continued industry growth will depend largely on the introduction of new programs and the extent to which the practices and the success of the top-performing programs can be emulated by other utilities.

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Appendix A

Utility Green Power Program Questionnaire (2006 Data)

Instructions – Please fill out a different form for each green power program offered. Please enter data for calendar year 2006.

Confidentiality – Individual utility responses to this survey regarding customers, sales, and marketing information will be held confidential. Data are used to prepare NREL’s list of top ten utility green power programs and to provide aggregate industry data to the U.S. DOE and the general public.

1. Program and Contact Information

a. Utility name	
b. Name of Green Power Program	
c. Name of respondent	
d. Phone of respondent	
e. email of respondent	
f. Year of program launch	
g. States in which program is offered	
<i>h. Name of third-party that helps market the program, if any</i>	
<i>i. Certifying organization, if certified (e.g., Green-e, ERT)</i>	

2. Participation. *In the table below, please provide participation data as of December 31, 2006. If data are provided for a different time period, please indicate here:*

a. Total number of residential green power participants		
b. Total number of non-residential green power participants		
c. Number of new residential green power participants in 2006 (do not subtract dropouts)		
d. Number of new non-residential green power participants in 2006 (do not subtract dropouts)		
e. Total number of residential customers (or members) eligible to participate		
f. Total number of non-residential customers (or members) eligible to participate		
g. Is the program currently open to new customers? Please check:	Yes	
	No	
h. Number of customers on waiting list		
i. Number of participants who have dropped out of the program this year		
j. Minimum period of time residential customers must participate (e.g., 1 year)		
k. Minimum period of time non-residential customers must participate (e.g., 2 years)		
l. Did you actively promote your green pricing program in 2006? Please check:	Yes	
	No	
m. Renewable Energy Mandates. Does your utility count the green power sold to customers through your green pricing program toward compliance with a state-imposed renewable portfolio standard? Please check:	Yes	
	No	

3. Programs Offered Through Distribution Utilities. For programs that are offered through multiple distribution cooperatives or municipal utilities, please list the number of distribution utilities that offer the program. In addition, list any utilities that have achieved participation rates of 4% or higher. Please add more space, if necessary.

Programs Offered Through Distribution Utilities	Response
a. Number of distribution utilities that offer the green power program	
b. Please list any utilities with >4% participation rate and indicate the utility's participation rate:	

4. Pricing. Please indicate the price premium as of the end of 2006.

Customer Type	Price premium for green power (¢/kWh)	Description of Premium (e.g., \$1/100 kWh)	Are green power participants exempt from fuel charge? Y/N	If yes, what was fuel charge in Dec 2006? (¢/kWh)	Change in Premium in 2006? Y/N* (explain below)	Minimum green power purchase (e.g. 25% of usage or 100 kWh)
a. Residential						
b. Non-Residential						
*If there was a change in the price premium during 2006 or if you anticipate a price premium change in 2007, please explain.						

5. Renewable Energy Sales for 2006. In the table below, please indicate the total annual sales of green power to customers during 2006. **If sales are reported for a period other than January through December 2006, please indicate the number of months for which data are provided.**

Green power sales for 2006	Total Annual Sales in 2006 (kWh)
a. Green power sales to residential customers	
b. Green power sales to non-residential customers	
c. Total retail electricity sales to eligible residential customers	
d. Total retail electricity sales to eligible non-residential customers	
e. Number of months of sales data provided	

6a. Program Sales by Renewable Resource. In the table below, please indicate the percentage of **green power sold through your program** in 2006 from each of the following renewable resources. Please do not include renewables that are part of your utility's overall resource mix, if they are not used to supply participants in the green power program.

Resource	Percent of green power program sales by resource type
Landfill Gas	%
Other Biomass	%
Geothermal	%
Hydroelectric	%
Solar	%
Wind	%
Total	100%

6b. Use of New Renewable Resources. Please indicate the percentage of **green power sold through your program** in 2006 that was sourced from renewable energy systems that were **built or repowered after January 1, 1997** (defined here as new). For example, if you sold 1,000 MWh of landfill gas through your program in 2006 and 500 MWh were derived from facilities built after Jan 1, 1997, then you would indicate 50% after landfill gas in the table below.

Resource	Percent of green power sales sourced from systems built or repowered after January 1, 1997 (defined here as new)
Landfill Gas	%
Other Biomass	%
Geothermal	%
Hydroelectric	%
Solar	%
Wind	%
Total	May not total 100%

7. Renewable Energy Supplies. *Of the renewable energy used to supply your program, what percentage came from the following?*

Renewable Energy Supplies	Percent
a. Renewable projects owned or partially-owned by your utility	%
b. Renewable electricity purchases from other suppliers/producers	%
c. Renewable electricity produced by utility customers (e.g. PV)	%
d. Renewable energy certificate (REC) purchases	%
Total	100%

8. Program Research. *Have you performed (in 2006 or earlier) market research to aid in the design of your green power program or have you performed a program evaluation?*

Research Category	Did you Perform? Please check Y/N	In what year(s) was research performed?	Type of Research or Evaluation Performed
a. Market Research	Yes		
	No		
b. Program Evaluation	Yes		
	No		

9. Customer Enrollment. In which ways can customers sign up for your program? Check all that apply. Also, please rate the effectiveness of each method on a scale of 1 to 5, with 5 being the most effective in terms of number of customers choosing this option

	Check All that Apply	Effectiveness Rating (1-5 scale, 5 =most effective)
a. Utility Web site		
b. By returning a mail-in card/bangtail		
c. Checking a box on their electric bill		
d. Sign up at special events		
e. By phone through the utility call center		
Other (list here and rate effectiveness):		

10. Value-Added Products. What other value-added products or services do you provide to customers that enroll in your green power program? Check all that apply.

Value-Added Products	Check All that Apply
a. Compact fluorescents or efficiency products	
b. Recognition of business customers in program ads or local media	
c. Discounts or promotions at local businesses	
d. Newsletters that provide program updates	
e. Tours to renewable energy project sites	
f. Welcome Kit/Thank you letter	
g. Decals for display in store windows	
h. Education programs/school installations	
i. Plaques, certificates or other recognition	
j. Protection from fuel cost increases	
k. Exemption from environmental fees	
l. Other (list here):	

11a. Marketing and Administration Spending. Please indicate below how much you spend annually on marketing and administration of your green power program. Check the appropriate boxes below.

Please note: **Marketing** costs include all spending associated with advertising, promoting, and selling the product including labor directly in support of those efforts. **Administrative** costs include (labor and non-labor) costs associated with customer service, transactions, billing, training, managing inventories, reporting, and legal/regulatory reviews, etc.

Please check one box in each column.		
	Marketing Costs	Administrative Costs
\$0		
\$1-\$9,999		
\$10,000-\$49,999		
\$50,000-\$99,999		
\$100,000-\$199,999		
\$200,000-\$299,999		
\$300,000-\$399,999		
\$400,000-\$499,999		
\$500,000 or more		
If you are able to provide us with actual costs, please indicate here:	\$	\$

12. Distribution of Costs.

What percentage of your green power premium was attributable to marketing and administrative costs in 2006?	%	
Are all program costs borne by program participants? Check one.	Yes	
	No	
If no, please explain		
On average, how much did you spend in 2006 to sign up each new residential customer (\$/customer)? Please include only marketing costs, not administrative costs.	\$	

13. Marketing Strategies. In the table below, please indicate which marketing strategies you used for your green power program in 2006. Check all that apply. Also, please rate the cost-effectiveness of those strategies utilized based on a scale of 1 to 5, with 5 being the most cost-effective.

Marketing Strategies	Check All That Apply	Cost Effectiveness Rating (1-5 scale, 5 =most cost effective)
a. Bill inserts		
b. Television		
c. Telemarketing		
d. Direct mail		
e. Radio		
f. Billboards		
g. Utility newsletter		
h. Bangtails		
i. Newspaper/other print ads		
j. Publicity/feature stories (non-paid)		
k. Events/Presenting to groups		
l. Community challenges		
m. Partner with environmental organizations		
n. Retail partners (co-branding)		
o. Web-based marketing		
p. Direct sales to commercial accts.		
q. Door-to-door sales to residential		
r. Kiosks		
Other (list here and rate effectiveness):		

Thank you for taking the time to complete the survey. Please email or fax this questionnaire by **Tuesday, February 20, 2007**, to: Gail Mosey, gail_mosey@nrel.gov, fax (303) 384-7449. If you have any questions, please call Gail Mosey at (303) 384-7356.

Appendix B

Table B-1. Utilities Offering Green Pricing Programs in Regulated Markets (2006)

Investor-Owned Utilities

Alabama Power Company
Alliant Energy
AmerenUE
Arizona Public Service
Avista Utilities
Central Vermont Public Service
Cheyenne Light, Fuel and Power Company
Connecticut Light and Power
Consumers Energy
Dominion North Carolina Power
DTE Energy
Duke Energy
El Paso Electric Company
Entergy Gulf States
Florida Power & Light Company
Georgia Power
Green Mountain Power
Gulf Power Company
Hawaiian Electric Company
Idaho Power Company
Indianapolis Power & Light Company
Kansas City Power & Light
Kentucky Utilities Company
Louisville Gas and Electric Company
Madison Gas & Electric
MidAmerican Energy
Minnesota Power
Nevada Power
NorthWestern Energy
NSTAR Electric
OG&E Electric Services
Otter Tail Power Company
Pacific Gas and Electric Company
PacifiCorp
Portland General Electric Company
Progress Energy Carolinas
Public Service Company of New Mexico
Puget Sound Energy
Savannah Electric
Tampa Electric Company
Tucson Electric Power Company
UniSource Energy Services
United Illuminating
Upper Peninsula Power Company
Vectren Energy Delivery of Indiana
We Energies
Wisconsin Public Service Corporation
Xcel Energy

Electric Cooperatives

Alabama Electric Cooperative
Associated Electric Cooperative, Inc.
Bandera Electric Cooperative
Basin Electric Power Cooperative*
Boone Electric Cooperative
Buckeye Power
CCS/Soyland
Central Electric Cooperative
Central Iowa Power Cooperative
Corn Belt Power Cooperatives
Dairyland Power Cooperative*

Dakota Electric Association
Delaware Electric Cooperative
Deseret Power
East Kentucky Power Cooperative*
Farmers Electric Cooperative
Georgia Electric Membership Corporation*
Golden Valley Electric Association
Great River Energy*
Gunnison County Electric Association
Holy Cross Energy
Hoosier Energy*
Intermountain Rural Electric Association
KAMO Electric Cooperative
Kauai Island Utility Cooperative (KIUC)
La Plata Electric Association
Lower Colorado River Authority
Lower Valley Energy
Midstate Electric Cooperative
Minnkota Power Cooperative*
New-Mac Electric Cooperative
Orcas Power & Light
Oregon Trail Electric Cooperative
Park Electric Cooperative
Pedernales Electric Cooperative
Peninsula Light Company
PNGC Power*
Southern Montana Electric G&T Cooperative
Tri-State Generation and Transmission Association*
Vigilante Electric Cooperative
Wabash Valley Power Association*
Western Farmers Electric Cooperative
Yampa Valley Electric Association

Federal

Tennessee Valley Authority*

Municipal/Public Utilities

City of Alameda
American Municipal Power-Ohio
Anaheim Public Utilities
City of Ashland
Austin Energy
Austin Utilities (MN)
Benton County Public Utility District
City of Bowling Green
Burbank Water and Power
Cedar Falls Utilities
Central Minnesota Municipal Power Agency
Chelan County Public Utility District
Clallam County PUD
Clark Public Utilities
Colorado Springs Utilities
Columbia River PUD
Concord Municipal Light Plant
Cowlitz PUD
CPS Energy (San Antonio)
Edmond Electric
City of Eldridge (IA)
ElectriCities
Emerald People's Utility District
Estes Park Light & Power

Eugene Water & Electric Board
Fort Collins Utilities
Gainesville Regional Utilities
Grant County PUD
Grays Harbor PUD
Heartland Consumers Power District
Iowa Association of Municipal Utilities*
Keys Energy Services
Lakeland Electric
Lansing Board of Water and Light
Lenox Municipal Utilities
Lewis County PUD
Lincoln Electric System
Lodi Utilities
Longmont Power & Communications
Los Alamos County (NM)
Los Angeles Department of Water and Power
Loveland Water & Power
Mason County PUD No. 3
Missouri Joint Municipal Electric Utility
Missouri River Energy Services*
Moorhead Public Service
Muscatine Power and Water
City of Naperville
City of New Smyrna Beach
Northern Wasco County PUD
Oklahoma Municipal Power Authority
Omaha Public Power District
Owatonna Public Utilities
Pacific County PUD
City of Palo Alto Utilities
Pasadena Water & Power
Platte River Power Authority*
Rochester Public Utilities (MN)
Roseville Electric
Sacramento Municipal Utility District
Salt River Project
Santee Cooper
Seattle City Light
Shrewsbury Electric and Cable Operations
Silicon Valley Power
Snohomish County Public Utility District
Southern Minnesota Municipal Power Agency*
City Utilities of Springfield (MO)
City of St. Charles
City of St. George
Tacoma Power
City of Tallahassee
Traverse City Light & Power
Waverly Light and Power
Wisconsin Public Power Inc.*

*denotes programs offered through multiple utilities or distribution cooperatives

Table B-2. Utility/Marketer Green Power Programs in Restructured Electricity Markets (2006)

Consumers Energy
Connecticut Light & Power
JP&L
Long Island Power Authority
National Grid (Massachusetts Electric, Nantucket
Electric, Narragansett Electric, Niagara Mohawk)
NYSEG
Rochester Gas and Electric
PECO Energy
PSE&G
United Illuminating

Appendix C

**Table C-1. Green Pricing Program Renewable Energy Sales
(as of December 2006)**

Rank	Utility	Resources Used	Sales (kWh/year)	Sales (aMW) ^a
1	Austin Energy	Wind, landfill gas	580,580,401	66.3
2	Portland General Electric ^b	Existing geothermal and hydro, wind	432,826,408	49.4
3	Florida Power & Light	Landfill gas, biomass, wind, solar	302,792,000	34.6
4	PacifiCorp ^{cd}	Wind, biomass, solar	299,862,690	34.2
5	Xcel Energy ^{ef}	Wind	236,505,718	27.0
6	Basin Electric Power Cooperative	Wind	217,427,000	24.8
7	Sacramento Municipal Utility District ^e	Wind, landfill gas, small hydro	216,476,278	24.7
8	National Grid ^{ghi}	Biomass, wind, small hydro, solar	156,447,869	17.9
9	OG&E Electric Services	Wind	134,553,920	15.4
10	Puget Sound Energy	Wind, solar, biogas	131,742,000	15.0

^a An "average megawatt" (aMW) is a measure of continuous capacity equivalent (i.e., operating at a 100% capacity factor).

^b Some products marketed in partnership with Green Mountain Energy Company.

^c Includes Pacific Power and Rocky Mountain Power.

^d Some Oregon products marketed in partnership with 3 Phases Energy Services.

^e Product is [Green-e](#) certified. For Xcel Energy, the Colorado and Minnesota Windsources products are Green-e certified.

^f Includes Northern States Power, Public Service Company of Colorado, and Southwestern Public Service.

^g Includes Niagara Mohawk, Massachusetts Electric, Narragansett Electric, and Nantucket Electric.

^h Marketed in partnership with Community Energy, EnviroGen, Green Mountain Energy Company, Mass Energy, People's Power & Light, and Sterling Planet.

ⁱ Some products are certified by [Green-e](#) or [Environmental Resources Trust](#).

**Table C-2. Total Number of Customer Participants
(as of December 2006)**

Rank	Utility	Program(s)	Participants
1	Xcel Energy ^a	<i>WindsorSource^b Renewable Energy Trust</i>	63,028
2	PacifiCorp ^{cd}	<i>Blue Sky Block Blue Sky Usage Blue Sky Habitat</i>	51,297
3	Portland General Electric ^e	<i>Clean Wind Green Source Healthy Habitat</i>	50,284
4	Sacramento Municipal Utility District	<i>Greenenergy^b</i>	35,307
5	PECO ^f	<i>PECO WIND</i>	34,303
6	Florida Power & Light ^g	<i>Sunshine Energy</i>	28,742
7	Los Angeles Department of Water and Power	<i>Green Power for a Green LA</i>	24,320
8	National Grid ^{hi}	<i>GreenUp^j</i>	23,751
9	Puget Sound Energy	<i>Green Power Program</i>	17,426
10	We Energies	<i>Energy for Tomorrow^b</i>	15,823

^a Includes Northern States Power, Public Service Company of Colorado, and Southwestern Public Service.

^b Product is *Green-e* certified (www.green-e.org). For Xcel Energy, only the Public Service Company of Colorado product is *Green-e* certified. For Alliant Energy, Iowa and Minnesota products are *Green-e* certified.

^c Includes Pacific Power and Utah Power.

^d Some Oregon products marketed in partnership with 3 Phases Energy Services.

^e Some products marketed in partnership with Green Mountain Energy Company.

^f Marketed in partnership with Community Energy Inc.

^g Marketed in partnership with Green Mountain Energy Company.

^h Includes Niagara Mohawk, Massachusetts Electric, Narragansett Electric, and Nantucket Electric.

ⁱ Marketed in partnership with Community Energy, EnviroGen, Green Mountain Energy Company, Mass Energy, People's Power & Light, and Sterling Planet.

^j Some products are certified by *Green-e* (www.green-e.org) or Environmental Resources Trust (<http://www.ert.net>).

**Table C-3. Customer Participation Rate
(as of December 2006)**

Rank	Utility	Customer Participation Rate	Program(s)	Program Start Year
1	City of Palo Alto Utilities ^a	16.9%	<i>Palo Alto Green^b</i>	2003
2	Lenox Municipal Utilities ^c	16.6%	<i>Green City Energy</i>	2003
3	Montezuma Municipal Light & Power ^c	6.5%	<i>Green City Energy</i>	2003
3	Portland General Electric ^d	6.5%	<i>Clean Wind Green Source</i>	2002
5	Sacramento Municipal Utility District	6.2%	<i>Greenenergy^b</i>	1997
6	Silicon Valley Power ^a	6.1%	<i>Santa Clara Green Power</i>	2004
7	Holy Cross Energy	5.6%	<i>Wind Power Pioneers Local Renewable Energy Pool</i>	1998 2002
8	Central Electric Cooperative ^c	5.5%	<i>Green Power</i>	1999
9	River Falls Municipal Utilities ^f	5.4%	<i>Renewable Energy Program</i>	2001
10	Orcas Power and Light Cooperative	5.1%	<i>Go Green</i>	1997

^a Marketed in partnership with 3 Phases Energy Services

^b Product is [Green-e](#) certified.

^c Program offered in association with the Iowa Association of Municipal Utilities.

^d Some products marketed in partnership with Green Mountain Energy Company.

^e Power supplied by PNGC Power.

^f Power supplied by Wisconsin Public Power Inc.

**Table C-4. Price Premium Charged for New, Customer-Driven Renewable Power^a
(as of December 2006)**

Rank	Utility	Resources Used	Premium (¢/kWh)
1	Austin Energy ^b	<i>Wind, landfill gas</i>	-0.13
2	OG&E Electric Services ^b	<i>Wind</i>	0.026
3	Edmond Electric ^{bc}	<i>Wind</i>	0.144
4	Avista Utilities	<i>Wind, landfill gas, biomass</i>	0.33
5	Indianapolis Power and Light	<i>Wind</i>	0.35
6	Eugene Water and Electric Board ^{bd}	<i>Wind</i>	0.65
7	Clallam County Public Utility District ^b	<i>Landfill gas</i>	0.70
8	PacifiCorp ^c	<i>Wind, biomass, solar</i>	0.78
9	Idaho Power	<i>Wind, solar</i>	0.882
10	Mason County PUD 3	<i>Wind</i>	1.0
10	Sacramento Municipal Utility District ^d	<i>Wind, landfill gas, hydro</i>	1.0
10	Wisconsin Public Service Corporation	<i>Wind, landfill gas, biomass</i>	1.0

^a Includes only programs that have installed or announced firm plans to install or purchase power from 100% new renewable resources.

^b Premium is variable; customers in these programs are exempt or otherwise protected from changes in utility fuel charges.

^c Power supplied by Oklahoma Municipal Power Authority.

^d Product is [Green-e](#) certified.

^e Pacific Power *Blue Sky Usage* product; only available in Oregon. Product marketed in partnership with 3 Phases Energy Services.

REPORT DOCUMENTATION PAGEForm Approved
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) October 2007		2. REPORT TYPE Technical Report		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Trends in Utility Green Pricing Programs (2006)				5a. CONTRACT NUMBER DE-AC36-99-GO10337	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Lori Bird and Marshall Kaiser				5d. PROJECT NUMBER NREL/TP-670-42287	
				5e. TASK NUMBER IGST.7330	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Renewable Energy Laboratory 1617 Cole Blvd. Golden, CO 80401-3393				8. PERFORMING ORGANIZATION REPORT NUMBER NREL/TP-670-42287	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S) NREL	
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER	
12. DISTRIBUTION AVAILABILITY STATEMENT National Technical Information Service U.S. Department of Commerce 5285 Port Royal Road Springfield, VA 22161					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT (Maximum 200 Words) In the early 1990s, only a handful of utilities offered their customers a choice of purchasing electricity generated from renewable energy sources. Today, more than 750 utilities—or about 25% of all utilities nationally—provide their customers a “green power” option. Through these programs, more than 70 million customers have the ability to purchase renewable energy to meet some portion or all of their electricity needs—or make contributions to support the development of renewable energy resources. Typically, customers pay a premium above standard electricity rates for this service. This report presents year-end 2006 data on utility green pricing programs, and examines trends in consumer response and program implementation over time. The data in this report, which were obtained via a questionnaire distributed to utility green pricing program managers, can be used by utilities to benchmark the success of their green power programs.					
15. SUBJECT TERMS NREL; green power; analysis; renewable energy; utilities; market penetration; green pricing programs; trends; consumers; Lori Bird					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UL	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (Include area code)